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PERSONAL

Birth: September 6, 1978 (Caracas, Venezuela)
Nationality: Chilean (US permanent resident)
Web Page: http://research.cbc.osu.edu/sotomayor.8

POSITIONS & EMPLOYMENT

2023 – *Full Professor with Tenure*
2019 – 2023 *Associate Professor with Tenure*
2013 – 2019 *Assistant Professor*
Alfred P. Sloan Fellow (2015-2017)
NIH-R00 Pathway to Independence Award (2013-2016)
Department of Chemistry and Biochemistry, The Ohio State University.
Affiliate: Biophysics; Ohio State Biochemistry; Molecular, Cellular, and Developmental Biology; and Chemical Physics Graduate Programs.

EDUCATION & TRAINING

2008 – 2013 *Postdoctoral Fellow*
NIH-K99 Pathway to Independence Award (2012 – 2013).
Helen Hay Whitney (2009 – 2012) – Howard Hughes Medical Institute.
Department of Neurobiology, Harvard Medical School, USA.
Department of Molecular and Cellular Biology, Harvard University, USA.
Advisors: Dr. David P. Corey, Dr. Rachelle Gaudet.

2007 *Ph.D., Physics*
2004 *M.S., Physics*
Department of Physics, University of Illinois at Urbana-Champaign, USA.
Advisor: Dr. Klaus Schulten.

2002 *M.S., Physics*
2001 *B.S., Physics*
DFI, FCFM, Universidad de Chile, Chile.
Advisors: Dr. Fernando Lund, Dr. Rodrigo Soto.

RESEARCH INTERESTS

Mechanotransduction; Mechanosensitive Ion Channels; Elasticity of Modular Proteins; Adhesion Molecules, Neural Circuits, and Cancer; Theoretical Modeling; Molecular Dynamics Simulations; X-ray Crystallography, Cryo-EM, Nuclear Magnetic Resonance, Native Mass Spectrometry, Atomic Force Microscopyl; Structural Biology.

HONORS & AWARDS

2023	**OSU ASC Mid-Career Faculty Excellence Award.**
2018	**Geraldine Dietz Fox Young Investigator Award, Association for Research in Otolaryngology.**
2017	**Elizabeth L. Gross Award for Faculty Excellence, Biophysics Graduate Program OSU.**
2015 – 2017	**Alfred P. Sloan Fellowship in Neuroscience.**
2015	**Distinguished Undergraduate Research Mentor Award OSU.**
2012 – 2016	**NIH Pathway to Independence Award K99/R00.**
2012	Selected to participate in the 62nd Lindau Nobel Laureate Meeting.
2009	Helen Hay Whitney Foundation Fellowship (accepted).
2009	Damon Runyon Cancer Research Foundation Fellowship (declined).
2007	Best Talk Prize, UIUC Cell and Molecular Biology – Molecular Biophysics Symposium.
2007	MCC/UIUC travel award to attend the CECAM meeting Ionic Transport: from Nanopores to Biological Channels, Lyon, France.
2005	BPS/IUPAB travel fellowship award to attend and participate in the International Biophysics Congress in Montpellier, France.
2004	Member of The Honor Society Phi Kappa Phi.
2002	Graduated with "Distinción Máxima" (Maximum Distinction), Master in Science, Physics, Universidad de Chile, Chile.
2002	Graduate Research Fellowship, CONICYT-Chile (National Commission for Scientific and Technological Research).
1997 – 2000	"Beca Presidente de la República" Chilean Government Undergraduate Scholarship.
1997 – 2000	"Outstanding Student" (Alumno Destacado). Top 5% of the Mathematical and Physical Sciences Division (FCFM) undergraduate students at Universidad de Chile are selected in this category each year.

GRANTS/FUNDING

Principal Investigator

- 2016 – 2027 **"Nanomechanics of Inner-Ear Hair-Cell Transduction" NIH NIDCD R01 DC015271 (Direct Costs: $1,062,500 years 1 to 5 + $1,250,000 for years 6 to 10).**
- 2021 – 2023 **"*In-Silico* Electrophysiology of the Inner-Ear Hair-Cell Mechanotransduction Channel TMC1" PSC/NRC Award for computing time on Anton 2 (MCB150024P).**
- 2018 – 2023 **"Evolutionary mechanics of adhesion complexes" Human Frontier Science Program RGP0056/2018 with Vincent Lynch at U. at Buffalo - SUNY and Felix Rico at INSERM ($900,000).**
- 2016 – 2023 "Molecular Basis of Sound Perception, Brain Wiring, and Gut Morphogenesis" Advanced Photon Source General User Proposal APS-GUP-49774/59251/70086/79344 for beam time access (Argonne National Laboratory).
- 2014 – 2023 "Molecular Mechanisms of Cadherin Dynamics and Force Transduction" Ohio Supercomputer Center grant OSC PAS1037 and PAA0217.
- 2014 – 2022 "Molecular Simulations of Cell Adhesion and Sound Transduction Complexes" National Science Foundation XSEDE grant MCB140226.
- 2019 – 2020 **"*In-Silico* Electrophysiology of the Inner-Ear Hair-Cell Mechanotransduction Channel TMC1" PSC/NRC Award for computing time on Anton 2 (MCB190084P).**
- 2016 – 2019 "Molecular Dynamics Simulations of Adherens Junctions" GLCPC Award for computing time on Blue Waters.
- 2016 – 2017 "Bending and Refolding of an Atypical Cadherin Fragment Involved in Inner-Ear Mechanotransduction" PSC/NRC Award for computing time on Anton 1 (PSCA15075P).
- 2015 – 2017 **"Stretching and Sorting Life: Structural Determinants of Mechanosensation and Cadherin Connectomics" Alfred P. Sloan Fellowship in Neuroscience FR-2015-65794 ($50,000).**

- 2012 – 2017 **"Force Spectroscopy and Structural Biology of Hair-Cell Tip Links," NIH Pathway to Independence Award K99/R00 DC012534 (Direct Costs: $698,744).**
- 2014 – 2016 "Towards a structural model of inner ear tip links" Advanced Photon Source General User Proposal APS-GUP-40277 for beam time access (Argonne National Laboratory).

Co-Principal Investigator / Subawards

- 2023 – 2027 **"MARC at The Ohio State University – Biomedical Research and Research Training" NIH NIGMS T34 GM145442, PIs Amy K. Ferketich, Shaurya Prakash, and M. Sotomayor.**
- 2022 – 2027 **"Development of Gene Therapy for Hereditary Deafness using Rational Protein Engineering" NIH NIDCD R01 DC020190, PIs Artur Indzhykulian, David P. Corey, and M. Sotomayor.**
- 2022 – 2026 "**Molecular and cellular mechanisms of actin cytoskeleton organization and function." NIH NIGMS R01 GM145813, PI Dmitri Kudryashov at OSU.**
- 2022 – 2025 **"Understanding biomolecular processes and designing emergent biomaterials" Beckman Scholars Program. Director: Venkat Gopalan, co-director: M. Sotomayor.**
- 2021 – 2025 **"Protocadherin control of cell proliferation and differentiation" NIH NIGMS R01 GM141280, PI James Jontes at OSU.**
- 2020 – 2023 **"Sonogenetic control of neurons in a large volume of the rodent brain" NIH NINDS R01 NS115591, PI Sreekanth H. Chalasani at Salk Institute for Biological Studies, sub award leader – M. Sotomayor (Total Costs OSU: $355,815).**

- 2018 – 2022 **"Molecular basis of brush border assembly" NIH NIDDK R01 DK095811, PI Matthew J. Tyska at Vanderbilt University, sub award leader – M. Sotomayor (Total Costs OSU: $521,031).**
- 2010 – 2012 "Resolving the Molecular Mechanisms of Calcium Binding to Cadherins Involved in Hearing and Deafness," 200,000 SUs. NRBSC/PSC PSCA00074P & PSCA10100P for Supercomputer time on DEShaw's Anton, with D. P. Corey and R. Gaudet.
- 2008 – 2012 "Molecular Mechanisms of Hereditary Deafness and Pain Sensation," 4,482,000 SUs. NSF TRAC MCB080015 for Supercomputer time with D. P. Corey and R. Gaudet.

Contributed to Grants:

- Molecular Basis of Inherited Deafness (NIH 1 R01 DC002281).
- Mechanisms of Membrane Proteins through In Situ Modeling (NIH 1 R01 GM067887).
- Molecular Mechanisms of Cellular Mechanics (NIH 1 R01 GM073655).
- Simulations of Supramolecular Biological Systems, 2004-2007 (NSF LRAC MCA93S028).
- Renewal of NIH Resource for Macromolecular Modeling and Bioinformatics (NIH P41-RR05969).

PUBLICATIONS

51 peer-reviewed publications (+4 *in revision or submitted*). Sum of ISI citations (using all databases): 3454; h-index: 26.[1] Sum of Google Scholar citations: 5049; h-index: 29.
† Corresponding author; * Equal contributions; § Undergraduate students from Sotomayor Laboratory

RESEARCH PAPERS

– A. P. J. Giese*, *W-H Weng**, K. S. Kindt, H. H. V. Chang, *J. S. Montgomery*, E. M. Ratzan, A. J. Beirl, R. A. Rivera, *J. M. Lotthammer*§, *S. Walujkar*, *M. P. Foster*, O. A. Zobeiri, J. R. Holt, S. Riazuddin, K. E. Cullen, *M. Sotomayor*, Z. M. Ahmed†. "Complexes of vertebrate TMC1/2 and CIB2/3 proteins form hair-cell mechanotransduction cation channels". *Submitted.* (https://www.biorxiv.org/content/10.1101/2023.05.26.542533v1).

[1] Number of citations using all ISI databases – Jun 2023.

– *E. Tamilselvan*, *M. Sotomayor*†. "CELSR1, a core planar cell polarity protein, features a weakly adhesive and flexible cadherin ectodomain". *Under review*.

– W. Zheng, S. Rawson, Z. Shen, *E. Tamilselvan*, *H. E. Smith*, J. Halford, C. Shen, S. E. Murthy, M. H. Ulbrich, *M. Sotomayor*, T-M. Fu†, J. R. Holt†. "TMEM63 Proteins Function as Monomeric High-threshold Mechanosensitive Ion Channels". *In revision.*

– *S. Walujkar**, *J. M. Lotthammer*§*, *C. R. Nisler*, *J. C. Sudar*§, *C. Klaus*, A. Ballesteros, *M. Sotomayor*†. "*In-silico* electrophysiology of inner-ear mechanotransduction channel TMC1 models". *In revision.* (https://www.biorxiv.org/content/10.1101/2021.09.17.460860v1).

(43) M. V. Ivanchenko, D. M. Hathaway, A. J. Klein, B. Pan, O. Strelkova, P. De-la-Torre, X. Wu, C. W. Peters, E. M. Mulhall, K. T. Booth, C. Goldstein, J. Brower, *M. Sotomayor*, A. A. Indzhykulian, D. P. Corey†. "Mini-PCDH15 gene therapy rescues hearing in a mouse model of Usher syndrome type 1F". *Nature Communications,* 14:2400, 2023.

(42) *C. R. Nisler*, *Y. Narui**, *E. Scheib**§, *D. Choudhary*, J. D. Bowman, *H. Mandayam Bharathi,* V. J. Lynch, *M. Sotomayor*†. "Interpreting the Evolutionary Echoes of a Protein Handshake Interaction Essential for Hearing". *Molecular Biology and Evolution,* 40:msad057, 2023. (https://www.biorxiv.org/content/10.1101/2022.01.23.477425v1). PDB structures: 7n4p, 7sb6, 7scm, 7sgx, 8e51.

(41) *B. L. Neel*, *C. R. Nisler*, *S. Walujkar*, *R. Araya-Secchi*, *M. Sotomayor*†. "Collective Mechanical Responses of Cadherin-Based Adhesive Junctions as Predicted by Simulations". *Biophysical Journal,* 121:991-1012, 2022 (ISI 2)[1]. (https://www.biorxiv.org/content/10.1101/2021.07.29.454068v1).

(40) *B. L. Neel**, *C. R. Nisler**, *S. Walujkar**, *R. Araya-Secchi*, *M. Sotomayor*†. "Elastic versus Brittle Responses Predicted for Dimeric Cadherin Complexes". *Biophysical Journal,* 121:1013-1028, 2022 (ISI 1)[1]. (https://www.biorxiv.org/content/10.1101/2021.07.29.454067v1).

(39) Y. Chen, *M. Sotomayor*, S. Capponi, B. Hariharan, I. D. Sahu, M. Haase, G. A. Lorigan, A. Kuhn, S. H. White, R. E. Dalbey†. "A Hydrophilic Microenvironment in the Substrate-Translocating Groove of the YidC Membrane Insertase is Essential for Enzyme Function". *Journal of Biological Chemistry*, 298:101690, 2022 (ISI 3)[1].

(38) T. Ahmed, *C. R. Nisler*, E. C. Fluck III, *S. Walujkar*, *M. Sotomayor*, V. Y. Moiseenkova-Bell†. "Structure of the ancient TRPY1 channel from *Saccharomyces cerevisiae* reveals mechanisms of modulation by lipids and calcium". *Structure,* 30:139-155, 2022 (ISI 6)[1]. Cover article. PDB structures: 6whg.

(37) *M. E. Gray**, *Z. R. Johnson*§*, *D. Modak**, *E. Tamilselvan*, M. J. Tyska, *M. Sotomayor*†. "Heterophilic and Homophilic Cadherin Interactions in Intestinal Intermicrovillar Links are Species Dependent". *PLoS Biology,* 19(12):e3001463, 2021 (ISI 1)[1]. (https://www.biorxiv.org/content/10.1101/2020.09.01.278846v1). PDB structures: 5czr, 7n86, 5cyx, 6oae.

(36) J. D. Hudson, *E. Tamilselvan*, *M. Sotomayor,* S. R. Cooper†. "A complete Protocadherin-19 ectodomain model for evaluating epilepsy-causing mutations and its protein interaction network". *Structure,* 29:1128-1143, 2021 (ISI 2)[1]. Cover article. PDB structures: 6pgw.

(35) *M. E. Gray*, *M. Sotomayor*†. "Crystal structure of the non-classical cadherin-17 N-terminus and implications for its adhesive binding mechanism". *Acta Crystallographica Section F,* 77:85-94, 2021 (ISI 1)[1]. PDB structures: 6ulm.

(34) B. J. Caldwell, A. Norris, E. Zakharova, C. E. Smith, C. T. Wheat, *D. Choudhary*, *M. Sotomayor*, V. H. Wysocki, C. E. Bell†. "Oligomeric complexes formed by Redß single strand annealing protein in its different DNA bound states". *Nucleic Acids Research,* 49:3441-3460, 2021 (ISI 4)[1].

(33) H. Smith, N. Pinkerton, D. B. Heisler, E. Kudryashova, A. R. Hall, K. R. Karch, A. Norris, V. Wysocki, E. Reisler, *M. Sotomayor*, D. Vavylonis, D. S. Kudryashov†. "Rounding out the understanding of ACD toxicity with the discovery of cyclic forms of acting oligomers". *Int. J. Mol. Sci.,* 22:718, 2021 (ISI 4)[1].

(32) *D. Choudhary**, *Y. Narui**, *B. L. Neel**, *L. N. Wimalasena*§, *C. F. Klanseck*§, *P. De-la-Torre*, *C. Chen*§, *R. Araya-Secchi*, *E. Tamilselvan*, *M. Sotomayor*†. "Structural Determinants of Protocadherin-15 Mechanics and Function in Hearing and Balance Perception". *PNAS,* 117:24837-24848, 2020 (ISI 19) [1]. (https://www.biorxiv.org/content/10.1101/695502v1). PDB structures: 6n22, 6mfo, 6n2e, 5uly, 6eb5, 6e8f, 5w1d, 6bxu, 6bwn, 5tpk, 6eet.

(31) *D. Modak*, *M. Sotomayor*†. "Identification of an Adhesive Interface for the Non-Clustered δ1 Protocadherin-1". *Communications Biology,* 2:354*,* 2019 (ISI 10)[1]. (https://www.biorxiv.org/content/10.1101/498196v1). PDB structures: 6bx7, 6mga, 6pim.

(30) J. W. Slater, S. C. Marguet, *M. E. Gray*, H. A. Monaco, *M. Sotomayor*, H. S. Shafaat†. "Power of the Secondary Sphere: Modulating Hydrogenase Activity in Nickel-Substituted Rubredoxin". *ACS Catalysis*, 9:8928-8942*,* 2019 (ISI 22)[1]. PDB structures: 6nw0, 6nw1.

(29) J. M. Nicoludis*, A. G. Green*, *S. Walujkar*, E. J. May, *M. Sotomayor*, D. S. Marks†, R. Gaudet†. "Interaction specificity of clustered protocadherins inferred from sequence covariation and structural analysis". *PNAS*, 116:17825-17830, 2019 (ISI 16)[1]. (https://www.biorxiv.org/content/10.1101/493106v1). PDB structures: 6meq, 6mer.

(28) M. S. Park*, *R. Araya-Secchi**, J. A. Brackbill*, H-D. Phan*, A. C. Kehling, E. W. Abd-El-Wahab, D. M. Dayeh, *M. Sotomayor*, K. Nakanishi†. "Multidomain convergence of Argonaute during RISC assembly correlates with the formation of internal water clusters". *Molecular Cell,* 75:725-740*,* 2019 (ISI 18)[1]. PDB structures: 6oon.

(27) T-H. Chen, *M. Sotomayor*, V. Gopalan†. "Biochemical studies provide insights into the necessity for multiple Arabidopsis thaliana protein-only RNase P isoenzymes". *Journal of Molecular Biology,* 431:615-624, 2019 (ISI 3)[1].

(26) *P. De-la-Torre*, *D. Choudhary*, *R. Araya-Secchi*, *Y. Narui*, *M. Sotomayor*†. "A Mechanically Weak Extracellular Membrane-Adjacent Domain Induces Parallel Dimerization of Protocadherin-15". *Biophysical Journal,* 115:2368-2385, 2018 (ISI 12)[1]. PDB structures: 6bxz.

(25) *A. Jaiganesh*, *P. De-la-Torre*, *A. A. Patel*§, *D. J. Termine*§, *F. Velez-Cortes*§, *C. Chen*§, *M. Sotomayor*†. "Zooming in on cadherin-23: Structural diversity and potential mechanisms of inherited deafness". *Structure*, 25:1210-1225*,* 2018 (ISI 17)[1]. PDB structures: 5w4t, 5tfm, 5tfl, 5vh2, 5wj8, 5wjm, 5tfk, 5vvm, 5uz8, 5vt8, 5un2, 5ulu, 5i8d.

(24) B. Pan*, N. Akyuz*, X-P. Liu*, Y. Asai, C. Nist-Lund, K. Kurima, B. H. Derfler, B. György, W. Limapichat, *S. Walujkar*, *L. N. Wimalasena*§, *M. Sotomayor*, D. P. Corey†, J. R. Holt†. "TMC1 Forms the Pore of Mechanosensory Transduction Channels in Mammalian Inner-Ear Hair Cells". *Neuron*, 99:736-753, 2018 (ISI 153)[1].

(23) T. Fecker*, P. Galaz-Davison*, F. Engelberger, *Y. Narui*, *M. Sotomayor*†, L. P. Parra†, C. A. Ramírez-Sarmiento†. "Active Site Flexibility as a Hallmark for Efficient PET-Degradation by *I. sakaiensis* PETase". *Biophysical Journal,* 114:1302-1312, 2018 (ISI 142)[1]. PDB structures: 6ane.

(22) *Y. Narui*, *M. Sotomayor*†. "Tuning Inner-Ear Tip-Link Affinity Through Alternatively Spliced Variants of Protocadherin-15". *Biochemistry, 57*:1702-1710*,* 2018 (ISI 11)[1]. PDB structures: 4xxw.

(21) *D. Choudhary*, A. Kumar, T. J. Magliery, *M. Sotomayor*†. "Using thermal scanning assays to test protein-protein interactions of inner-ear cadherins". *PLoS One,* 12(12):e0189546, 2017 (ISI 7)[1].

(20) R. E. Powers, R. Gaudet†, *M. Sotomayor*†. "A partial calcium-free linker confers flexibility to inner-ear protocadherin-15". *Structure*, 25:482-495, 2017 (ISI 18)[1]. PDB structures: 5t4m, 5t4n.

(19) *R. Araya-Secchi*, *B. L. Neel*, *M. Sotomayor*†. "An elastic element in the protocadherin-15 tip link of the inner ear". *Nature Communications*, 7:13458, 2016 (ISI 29)[1]. PDB structures: 4xhz, 5kj4.

(18) *S. R. Cooper*, J. D. Jontes†, *M. Sotomayor*†. "Structural determinants of adhesion by protocadherin-19 and implications for its role in epilepsy". *eLife,* 5:e18529, 2016 (ISI 55)[1]. PDB structures: 5iu9, 5co1.

(17) M. A. Koussa, *M. Sotomayor*, W. Wong†. "Protocol for sortase-mediated construction of DNA-protein hybrids and functional nanostructures" *Methods,* 67:134-141, 2014 (ISI 31)[1].

(16) R. Geng, *M. Sotomayor*, K. J. Kinder, S. R. Gopal, J. Gerka-Stuyt, D. H.-C. Chen, R. E. Hardisty-Hughes, G. Ball, A. Parker, R. Gaudet, D. Furness, S. D. M. Brown, D. P. Corey, K. N. Alagramam†. "Noddy, a mouse harboring a missense mutation in protocadherin-15, reveals the impact of disrupting a critical interaction site between tip-link cadherins in inner-ear hair cells" *The Journal of Neuroscience,* 33:4395-4404*,* 2013 (ISI 28)[1]. *Recommended by F1000Prime.*

(15) *M. Sotomayor*, W. A. Weihofen, R. Gaudet†, and D. P. Corey†. "Structure of a Force-Conveying Cadherin Bond Essential for Inner-Ear Mechanotransduction" *Nature,* 492:128-132, 2012 (ISI 116)[1]. PDB structures: 4apx, 4aq8, 4aqa, 4aqe, 4axw.

(14) H. Inada, E. Procko, *M. Sotomayor*, R. Gaudet†. "Structural and biochemical consequences of disease-causing mutations in the ankyrin repeat domain of the human TRPV4 channel" *Biochemistry,* 51:6195-6206, 2012 (ISI 63)[1]. *Recommended by F1000Prime.* PDB structures: 4dx1, 4dx2.

(13) J. Gumbart, F. Khalili-Araghi, *M. Sotomayor*, and B. Roux†. "Constant electric field simulations of the membrane potential illustrated with simple systems" *BBA – Biomembranes*, 1818:294-302, 2012 (ISI 130)[1].

(12) R. Gamini, *M. Sotomayor*, C. Chipot, and K. Schulten†. "Cytoplasmic domain filter function in the mechanosensitive channel of small conductance" *Biophysical Journal*, 101:80-89, 2011 (ISI 23)[1].

(11) D. Asenjo, F. Lund†, S. Poblete, R. Soto, and *M. Sotomayor*. "Characterization of the melting transition in two dimensions at vanishing external pressure using molecular dynamics simulations" *Physical Review B*, 83:174110, 2011 (ISI 1)[1].

(10) *M. Sotomayor**, W. A. Weihofen*, R. Gaudet†, and D. P. Corey†. "Structural Determinants of Cadherin-23 Function in Hearing and Deafness" *Neuron*, 66:85-100, 2010 (ISI 100)[1]. *Cover article. Recommended by F1000Prime.* PDB structures: 2wbx, 2wcp, 2whv, 2wd0.

(9) V. Vasquez, *M. Sotomayor*, J. Cordero-Morales, K. Schulten, and E. Perozo†. "A structural mechanism for MscS gating in lipid bilayers" *Science*, 321:1210-1214, 2008 (ISI 142)[1].

(8) *M. Sotomayor* and K. Schulten†. "The Allosteric Role of the Ca^{2+} Switch in Adhesion and Elasticity of C-Cadherin" *Biophysical Journal*, 94:4621-4633, 2008 (ISI 101)[1].

(7) B. Lim*, E. H. Lee*, *M. Sotomayor*, and K. Schulten†. "Molecular basis of fibrin clot elasticity" *Structure*, 16:449-459, 2008 (ISI 99)[1].

(6) V. Vasquez, *M. Sotomayor*, D. M. Cortes, B. Roux, K. Schulten, and E. Perozo†. "Three dimensional architecture of membrane-embedded MscS in the closed conformation" *Journal of Molecular Biology*, 378:55-70, 2008 (ISI 66)[1].

(5) *M. Sotomayor**, V. Vasquez*, E. Perozo, and K. Schulten†. "Ion Conduction through MscS as Determined by Electrophysiology and Simulation" *Biophysical Journal*, 92:886-902, 2007 (ISI 107)[1].

(4) *M. Sotomayor**, T. A. van der Straaten*, U. Ravaioli, and K. Schulten†. "Electrostatic Properties of the Mechanosensitive Channel of Small Conductance MscS" *Biophysical Journal*, 90:3496-3510, 2006 (ISI 47)[1].

(3) *M. Sotomayor*, D. P. Corey†, and K. Schulten†. "In Search of the Hair-Cell Gating Spring: Elastic Properties of Ankyrin and Cadherin Repeats" *Structure* 13:669-682, 2005 (ISI 227)[1].

(2) *M. Sotomayor* and K. Schulten†. "Molecular Dynamics Study of Gating in the Mechanosensitive Channel of Small Conductance MscS" *Biophysical Journal* 87:30503065, 2004 (ISI 141)[1].

(1) C.J. Clarke†, A. Gendrin, and *M. Sotomayor*. "The dispersal of circumstellar discs: the role of the ultraviolet switch" *Monthly Notices of the Royal Astronomical Society* 328:485-491, 2001 (ISI 427)[1].

REVIEWS & BOOK CHAPTERS

(8) *A. Jaiganesh, Y. Narui, R. Araya-Secchi, M. Sotomayor*†. "Beyond Cell-Cell Adhesion: Sensational Cadherins for Hearing and Balance" *CSH Perspectives in Biology*, Cell-Cell Junctions, 2017 (ISI 30)[1].

(7) *M. Sotomayor*†, R. Gaudet†, D. P. Corey†. "Sorting Out a Promiscuous Superfamily: Towards Cadherin Connectomics" *Trends in Cell Biology*, 24:524-536, 2014 (ISI 59)[1].

(6) E. H. Lee, J. Hsin, *M. Sotomayor*, G. Comellas, and K. Schulten†. "Discovery through the computational microscope" *Structure*, 17:1295-1306, 2009 (ISI 240)[1].

(5) F. Khalili-Araghi, J. Gumbart, P. Wen, *M. Sotomayor*, E. Tajkhorshid, and K. Schulten†. "Molecular dynamics simulations of membrane channels and transporters" *Current Opinion in Structural Biology*, 19:128-37, 2009 (ISI 170)[1].

(4) *M. Sotomayor* and K. Schulten†. "Single-Molecule Experiments *in Vitro* and *in Silico*" *Science*, 316:1144-1148, 2007 (ISI 441)[1].

(3) M. Gao, *M. Sotomayor*, E. Villa, E. Lee, and K. Schulten†. "Molecular Mechanisms of Cellular Mechanics" *Physical Chemistry-Chemical Physics*, 8:3692-3706, 2006 (ISI 53)[1].

(2) E. Tajkhorshid, J. Cohen, A. Aksimentiev, *M. Sotomayor*, and K. Schulten†. "Towards an understanding membrane channels" in Bacterial ion channels and their eukaryotic homologues, Boris Martinac and Andrzej Kubalski, editors, pp. 153–190. ASM Press, Washington, DC, 2005 (ISI 14)[1].

(1) D.P. Corey† and *M. Sotomayor*. "Tightrope act" *Nature* 428:901-902, 2004 (ISI 42)[1].

PATENTS

"AAV vectors encoding mini-PCDH15 and uses thereof", WO2020219990-A1

PRESENTATIONS

- "The Molecular Machinery of Hearing". *Virginia Tech Life Science Seminars, Virginia Tech,* 2023, Blacksburg, Virginia, USA.
- "Molecular Biophysics of Hearing". *Student-organized Biophysics Week event*, *Cedarville University*, 2023, Ohio, USA.
- **"Towards an Atomic Model of the Inner-Ear Transduction Apparatus". *Biophysical Society, 67th Annual Meeting* 2023, San Diego, USA.**
- "Integrating Experiments, AlphaFold 2 Predictions, and Simulations to Investigate the Vertebrate Inner-Ear Transduction Apparatus". *University of Chicago*, 2023, Illinois, USA.

- "Integrating Experiments, AlphaFold 2 Predictions, and Simulations to Investigate the Vertebrate Inner-Ear Transduction Apparatus". *Institute for Physical Science and Technology, University of Maryland*, 2022, College Park, USA.
- "Deep dreaming of hearing and balance proteins: Integrating Experiments, AlphaFold 2 Predictions, and Simulations to Investigate the Vertebrate Inner-Ear Transduction Apparatus". *CBC Seminar Series, The Ohio State University*, 2022, Ohio, USA.
- "Integrating Experiments, AlphaFold 2 Predictions, and Simulations to Investigate the Vertebrate Inner-Ear Transduction Apparatus". EMBO workshop - *When predictions meet experiments: The future of structure determination*, 2022, Palermo, Italy.
- "Evolutionary Mechanics of Adhesive Bonds Essential for Hearing". 21st Human Frontier Science Program Awardees Meeting, 2022 Paris, France.
- "Towards an Atomic Model of the Inner-Ear Transduction Apparatus". *Molecular Biology of Hearing and Deafness*, 2022, Iowa City, USA.
- **"Molecular Mechanisms Underlying CIB Function in Inner-Ear Mechanotransduction". *45th Midwinter Research Meeting, Association for Research in Otolaryngology,* 2022 (Zoom).**
- "Structure of a force-conveying cadherin bond essential for inner-ear mechanotransduction". Journal Club Sociedad de Biofísicos Latinoamericanos (SOBLA), 2022 (Zoom).

- "Explorando la maquinaria molecular de la audición". Tertulias 2021 (Zoom).
- "Audición, Protocadherina-15, y Terapia Genética para el Síndrome de Usher". Ear Summit Colombia 2021 (Zoom).
- "Cadherins have the guts!". *University of Toledo,* 2021, Ohio (Zoom), USA.

- "The Molecular Machinery of Hearing". *Virginia Commonwealth University School of Medicine,* 2021, Virginia (Zoom), USA.
- "The Molecular Machinery of Hearing". *SBGrid webinar* 2021. *https://www.youtube.com/watch?v=mt_037BSdMg*

- "Un Puente de Proteínas para Escuchar y para Aprender de Biofísica". *Charla Plenaria, XXII Simposio Chileno de Física,* 2020, Santiago (Zoom), Chile.
- "Molecular Mechanics of Hearing". *Department of Physics Colloquium, The Ohio State University,* 2020, Columbus (Zoom), USA.
- "Una Vista Molecular de la Percepción del Sonido". *Universidad Nacional Andrés Bello,* 2020, Santiago, Chile.
- **"Structuring Inner-Ear Mechanotransduction". *Biophysical Society, 65th Annual Meeting* 2020, San Diego, USA.**
- **"Structuring Inner-Ear Mechanotransduction". *43rd Midwinter Research Meeting, Association for Research in Otolaryngology*, 2020, San Jose, USA.**

- "Structuring Inner-Ear Mechanotransduction". *NIDCD – NIH*, 2019, Bethesda, USA.
- "The Molecular Machinery of Hearing". *Arts and Sciences College Science Sundays Series*, OSU 2019, Ohio, USA.
- "Structuring and modeling inner-ear mechanotransduction". *Department of Biochemistry and Molecular Biology seminar series*, *Michigan State University* 2019, Michigan, USA.
- "Sixty years in the making: A molecular movie of inner-ear mechanotransduction". *OSU Life Sciences Interdisciplinary Graduate Programs Symposium*, 2019, Ohio, USA. *Invited by students.*

- "Revealing the structure and dynamics of cadherin assemblies involved in morphogenesis and hearing". *Department of Molecular Genetics, Biochemistry & Microbiology Seminar Series, University of Cincinnati*, 2018, Cincinnati, USA.
- "Revealing the structure and dynamics of cadherin assemblies involved in morphogenesis and hearing". *Department of Cell and Developmental Biology Seminar Series, Vanderbilt University*, 2018, Nashville, USA.
- "Biochemistry of Hearing". *XLI Annual Meeting of the Chilean Biochemistry and Molecular Biology Society*, 2018, Iquique, Chile.
- "Resolving the structural determinants of cadherin function in morphogenesis and hearing". *CBC Seminar Series, The Ohio State University*, 2018, Ohio, USA.
- "Molecular Mechanics of Hearing". *Bollum Symposium in Chemical and Structural Biology, The University of Minnesota*, 2018, Minneapolis, USA.
- "Inner-Ear Sensory Perception and Brain Wiring Enabled by Exceptional Cadherins". *Computational Neuroscience Seminar Series, The University of Chicago*, 2018, Chicago, USA.

- "Molecular Mechanics of Hearing". *Department of Physics and Astronomy Seminar Series, Iowa State University*, 2017, Ames, USA.
- **"Sound Perception and Brain Wiring Enabled by Exceptional Cadherins". *Society for Neuroscience Annual Meeting*, 2017, Washington, DC, USA.**
- "Large-Scale Molecular Dynamics Simulations of Cadherin Complexes" *Klaus Schulten Memorial Symposium*, 2017, Urbana, USA.
- "Structural Biology at Ohio State and the Biochemistry of Hearing" *First OSU/PUC Interdisciplinary Symposium, Pontificia Universidad Católica,* 2017, Santiago, Chile.
- "Strings Attached: Sound Perception and Brain Wiring Enabled by Cadherins". *Cellular, Molecular & Biochemical Sciences Training Program Annual Symposium, The Ohio State University*, 2017, Ohio, USA.
- **"Strings Attached: Sound Perception and Brain Wiring Enabled by Cadherins". *American Society for Biochemistry and Molecular Biology Annual Meeting*, 2017, Chicago, Illinois, USA.**

- "Strings Attached: Sound Perception, Brain Wiring, and Epithelial Morphogenesis Enabled by Cadherins". *CBC Seminar Series, The Ohio State University*, 2016, Ohio, USA.
- "Strings Attached: Sound Perception and Brain Wiring Enabled by Cadherins". *Pharmacology Lecture Series, Case Western Reserve University*, 2016, Ohio, USA.
- "Modeling the Molecular Mechanics of Hearing". *47th Central Regional Meeting, American Chemical*

Society, 2016, Kentucky, USA.
- "Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing, Balance & Beyond". *Department of Biology Seminar Series, University of Toledo*, 2016, Ohio, USA.
- "Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing, Balance & Beyond". *Physiology Seminar Series at the University of Kentucky*, 2016, Kentucky, USA.
- "Molecular Mechanics and Biochemistry of Hearing". *Indiana State University Department of Chemistry and Physics Seminar Series,* 2016, Terre Haute, USA.
- "Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing, Balance & Beyond". *Ohio State University Pharmacology and Pharmaceutics Seminar Series,* 2016, Columbus, USA.

- "Modeling the Molecular Mechanics of Hearing". *Ohio State University Applied Math Seminar,* 2015 Columbus, USA.
- **"Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing and Balance". *Society for Neuroscience's 45th Annual Meeting*, 2015, Chicago, Illinois, USA.**
- "Challenges and Opportunities for Biomolecular Modeling". *Midwest Computational Biomolecular Modeling Symposium,* 2015, Urbana, USA.
- "Life Under Tension: Exceptional Cadherins for Hearing and Balance". *OSU Life Sciences Interdisciplinary Graduate Programs Symposium,* 2015, Columbus, USA. *Invited by students.*
- "Mechanisms and Mechanosensitivity: Inner-Ear Cadherins Gone Wild". *Georgia Tech Soft Condensed Matter and Biophysics Seminar,* 2015, Atlanta, USA.
- "Life under Tension: Molecular Mechanisms of Mechanosensation". *Georgia Tech Molecular Biophysics Seminar,* 2015, Atlanta, USA. *Invited by students.*
- **"Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing and Balance". *Force-Gated Ion Channels,* 2015, HHMI Janelia Farm, USA.**
- **"Mechanisms and Mechanosensitivity: Exceptional Cadherins for Hearing and Balance". *Biophysical Society 59th Annual Meeting,* 2015, Maryland, USA.**

- "Life under tension: imaging and stretching a molecular handshake essential for hearing and balance". *Nexos 2014,* Philadelphia, USA.
- **"Computational Exploration of Single-Protein Mechanics by Steered Molecular Dynamics". *Mechanics of Hearing, 12th International Workshop*, 2014, Cape Suonio, Greece.**
- "Molecular Mechanics of Inner-Ear Tip Links". *IUPUI Department of Physics Colloquium*, 2014, Indianapolis, USA.
- "**Molecular Mechanics of Hair Cell Tip Links". *37th Midwinter Research Meeting, Association for Research in Otolaryngology*, 2014, San Diego, USA.**
- **"Molecular Mechanisms of deafness mutations disrupting tip-link function in hair-cell mechanotransduction". *Biophysical Society, 58th Annual Meeting* 2014, San Francisco, USA.**

- "Mechanisms and Mechanosensitivity: A Cadherin Handshake for Hearing and Balance". *McGill University, Physiology Friday Seminar Series*, 2013, Montreal, Canada.
- "Mechanisms and Mechanosensitivity: Inner-Ear Cadherins Gone Wild". *UIUC Theoretical and Computational Biophysics Group Seminar Series*, 2013, Urbana, USA.
- "Mechanisms and Mechanosensitivity: A Cadherin Handshake for Hearing and Balance". *OSU Biophysics Graduate Program Seminar Series*, 2013, Columbus, USA.
- **"Molecular Mechanisms of Deafness Mutations Disrupting Tip-Link Function in Hair Cell Transduction". *18th International Symposium on Ca^{2+}-Binding Proteins and Ca^{2+} Function in Health and Disease*, 2013, Kiruna, Sweden.**
- **"Molecular Mechanisms of Deafness Mutations Disrupting Tip-Link Function in Hair Cell Transduction". *36th Midwinter Research Meeting, Association for Research in Otolaryngology*, 2013, Baltimore, USA.**
- "Modelos, Estructuras y Dinámica de Proteínas Esenciales para la Audición y el Equilibrio". *Universidad Adolfo Ibañez*, 2013, Santiago, Chile.

- "De las estrellas a la biofísica de proteínas: haciendo una carrera científica interdisciplinaria al andar". *Universidad de Talca*, 2012, Talca, Chile.
- "Structures and Simulated Dynamics of a Force-Conveying Cadherin Bond Essential for Inner-Ear Mechanotransduction". *NIDCD – NIH*, 2012, Bethesda, USA.

- **"A Cadherin Handshake for Hearing and Balance". *Exciting Biologies – Forces in Biology*, 2012, Dublin, Ireland.**
- "Estructuras y Dinámica de Proteínas Esenciales para la Audición y el Equilibrio". *Universidad Andrés Bello*, 2012, Santiago, Chile.
- "Estructuras y Dinámica de Proteínas Esenciales para la Audición y el Equilibrio". *Universidad de Chile*, 2012, Santiago, Chile.
- "A Cadherin Handshake for Hearing and Balance". *Boston Area Young Chilean Investigators Symposium*, 2012, Boston, USA.
- "Molecular Mechanisms Underlying Function of Mechanosensitive Channels and Mechanical Proteins". *Georg-August-Universität*, 2012, Göttingen, Germany.
- "Life under Tension: Molecular Mechanics of Sensory Transduction in the Inner Ear". *Delft University of Technology*, 2012, Delft, The Netherlands.
- "Life under Tension: Molecular Mechanics of Sensory Transduction in the Inner Ear". *Stanford University*, 2012, Stanford, USA.
- "Life under Tension: Molecular Mechanics of Sensory Transduction in the Inner Ear". *Johns Hopkins University*, 2012, Baltimore, USA.
- "Life under Tension: Molecular Mechanics of Inner-Ear Cadherins". *UT Southwestern*, 2012, Dallas, USA.
- "Life under Tension: Molecular Mechanics of Inner-Ear Cadherins". *The Ohio State University*, 2012, Columbus, USA.

- **"A Cadherin Handshake for Hearing and Balance". *Mechanical Forces in Development*, 2011, Boston, USA.**
- "Molecular Mechanics of Tip-Link Cadherins". *Eaton-Peabody Laboratories Seminar*, 2011, Boston, USA.
- **"Structural Determinants of Tip-Link-Cadherin Function in Hearing and Deafness". *17th International Symposium on Ca^{2+}-Binding Proteins and Ca^{2+} Function in Health and Disease*, 2011, Beijing, China.**

- **"Structural Determinants of Tip-Link-Cadherin Function in Hearing and Deafness". *Society for Neuroscience's 40th Annual Meeting*, 2010, San Diego, California, USA.**

- **"Structure, Dynamics, and Elasticity of Cadherin-23 Repeats Involved in Hereditary Deafness". *49th Annual Meeting of the American Society for Cell Biology*, 2009, San Diego, California, USA.**
- **"Conformational Transitions Underlying Tension-dependent Gating in Prokaryotic Mechanosensitive Channels". *Gordon Research Conference on Cellular Osmoregulation and Mechanotransduction*, 2009, Biddeford, Maine, USA.**
- **"Cadherin Dynamics and Molecular Mechanisms of Hereditary Deafness". *32nd Midwinter Research Meeting, Association for Research in Otolaryngology*, 2009, Baltimore, Maryland, USA.**

- **"Cadherin Dynamics and Molecular Mechanisms of Hereditary Deafness". *Force-Gated Ion Channels: From Structure to Sensation*, 2008, HHMI Janelia Farm Research Campus, USA.**

- "The Allosteric Role of the Ca^{2+} Switch in Adhesion and Elasticity of C-Cadherin". *20th CMB–MB Annual Research Symposium*, 2007, Urbana, USA.
- "Ion conduction through the Mechanosensitive Channel of Small Conductance MscS". *CECAM meeting Ionic Transport: from Nanopores to Biological Channels*, 2007, Lyon, France.
- "Life under Tension: Molecular Mechanisms of Mechanosensitive Channels and Mechanical Sensors". *MCTP/ICAM Workshop Mechanics of Life: From Biomolecules to Molecular Machines*, 2007, Ann Arbor, Michigan, USA.

- "Tertiary and Secondary Structure Elasticity of Repeat Proteins". *87th International Bunsen Discussion Meeting on Mechanically Induced Chemistry —Theory and Experiment—* 2005, Tutzing, Germany.
- **"Mechanisms of Mechanosensitive Channels and Mechanical Sensors Studied by Molecular Dynamics Simulations". *Gordon Research Conference on Mechanotransduction and Gravity Signaling in Biological Systems*, 2005, Biddeford, Maine, USA.**
- "The Molecular Basis of Hearing". *4D Nanostructure Lecture Series*, 2005, Beckman Institute, Urbana, Illinois, USA.

SUMMER SCHOOLS & TRAINING WORKSHOPS

2017	**SBGrid Workshop on Electron Microscopy Data Processing (RELION 2.0)**
2009	Rapid Data Collection & Structure Solving at the NSLS: A Practical Course in Macromolecular X-Ray Diffraction Measurement (April 19-24) *Brookhaven National Laboratory*, NY, USA.
2007	Biology of the Inner Ear: Experimental and Analytical Approaches (August 19-September 1) *Marine Biology Lab*, Woods Hole, MA, USA.
2000	Particle Physics and Astronomy International Undergraduate Summer School (IUSS, 24 June to 4 August) *University of Cambridge & PPARC*, UK. Supervised by Dr. C. J. Clarke.
1998	Astronomy Summer School, Las Campanas Observatory. *Fundación Andes-Carnegie Institution of Washington*.

TEACHING

- 2020 Instructor. Graduate Course "Advanced Physical Biochemistry" OSU, USA (7 lectures).
- 2018 – 2023 **Instructor. Undergraduate Course "Early Experience in Biochemical Research" OSU, USA.**
- 2016 Project leader. Ohio Supercomputer Center Summer Institute for High School Students.
- 2015 – 2021 **Instructor. Graduate Course "Quantum Mechanics and Spectroscopy" OSU, USA (20 lectures each fall except 2018 and 2020).**
- 2015 Instructor. Graduate Course "Introduction to Electronic Structure" OSU, USA (20 lectures fall).
- 2014 Instructor & Organizer, Biochemistry Training Day "Hands-on Introduction to Protein Simulations". London, UK.
- 2014 – 2023 **Instructor. Undergraduate Course "Physical Chemistry – Physical Biochemistry II" OSU, USA (20 lectures each spring 2014 – 2016, 40 lectures each spring 2017-2023, except 2021).**
- Co-author of NAMD, VMD, Membrane Proteins, and Ion Conduction Tutorials. http://www.ks.uiuc.edu/Training/TutorialsOverview/index.html
- Co-author of Water Case Study. http://www.ks.uiuc.edu/Training/CaseStudies/index.html
- 2003 – 2007 Instructor. Theoretical and Computational Biophysics School (Urbana, 2003; Boston, 2004; Chicago, 2005; Talca–Chile, 2006; Bethesda, 2007). http://www.ks.uiuc.edu/Training/
- 2002 Teaching Assistant (Grader). Undergraduate Course "Quantum Physics I" UIUC.
- 2001 Teaching Assistant. Undergraduate Course "Quantum Mechanics" University of Chile.
- 2000 Teaching Assistant. Undergraduate Course "Electromagnetism" University of Chile.
- 1999 – 2000 Teaching Assistant. Undergraduate Course "Modern Physics" University of Chile.
- 1999 Teaching Assistant. Undergraduate Course "Dynamical Systems" (Mechanics II), University of Chile.

RESEARCH GROUP MEMBERS (***current***)

Nicholas Alcorn (undergraduate student)
Kidist Alemayehu (undergraduate student)
Daisy Alvarado (graduate student)
Janina Anokye (undergraduate student)
Yaw Agyemang (technician)
Jeshua Avila-Estrada (graduate student)
Pranay Arora (undergraduate student)
Raúl Araya-Secchi (postdoc)
Qurat Ashraf (graduate student)
Marissa Boyer (graduate student)
Conghui (Claire) Chen (undergraduate student)
Deepanshu Choudhary (graduate student)
Sharon Cooper (graduate student)
Pedro De-la-Torre (postdoc)
Melvyn Drag (master student)
Pablo Galaz-Davison (visiting scholar)
Michelle Gray (graduate student)
Travis Harrison-Rawn (undergraduate student)
Diana Lopez (graduate student)
Jeffrey Lotthammer (undergraduate student)
Harsha Mandayam Bharathi (graduate student)
Shounak Mukherjee (graduate student)
Debadrita Modak (graduate student)
Yoshie Narui (postdoc)
Brandon Neel (graduate student)
Collin Nisler (graduate student)
Jasan Sandhu (undergraduate student)
Emily Scheib (undergraduate student)
Harper Smith (graduate student)
Serina Smith (undergraduate student)
Zachary Smith (graduate student)
Joseph Sudar (undergraduate student)
Leah Pastor (undergraduate student)
Aniket Patel (undergraduate student)
Neal Taliwal (undergraduate student)
Elakkiya Tamilselvan (graduate student)

Avinash Jaiganesh (graduate student)
Zachary Johnson (undergraduate student)
Hariharan Kannan (undergraduate student)
Deryanur Kilic (visiting scholar)
Carissa Klanseck (undergraduate student)
Colin Klaus (postdoc)
Michael Leake (undergraduate student)
Ashley Le (undergraduate student)
Domenic Termine (undergraduate student)
Adrienne Thornburg (graduate student)
Florencia Velez-Cortes (undergraduate student)
Sanket Walujkar (graduate student)
Haosheng Wen (graduate student)
Wei-Hsiang Felix Weng (graduate student)
Carter Wheat (graduate student)
Lahiru Wimalasena (undergraduate student)

NOTABLE TRAINEES' ACCOMPLISHMENTS

2023 OSU IGP Best poster presentation runner up – Elakkiya Tamilselvan
2023 OSU ASC Scholarship – Kidist Alemayehu
2023 OSU Undergraduate Research Scholarship – Emily Scheib
2023 OSU International Research Grant – Emily Scheib
2023 Best OSU Biophysics Presentation – Harper Smith
2023 Beckman Scholarship – Hariharan Kannan
2023 Berliner and Anderson Chemistry Scholarship – Hariharan Kannan
2022 Undergraduate Research Scholarship – Hariharan Kannan
2022 COMP BIO ASIA 2022 – Diana Lopez
2022 IGP OSU runner up poster prize – Diana Lopez
2022 Fellowship – Cellular, Biochemical, and Molecular Sciences Training Program – Carter Wheat
2022 Beckman Scholarship – Emily Scheib
2022 CBC Scholarship – Hariharan Kannan
2022 Hunter Chemistry Scholarship – Emily Scheib
2022 McNevin Chemistry Scholarship – Hariharan Kannan
2022 Hunter Chemistry Scholarship – Travis Harrison-Rawn
2022 NSF Graduate Fellowship – Joseph Sudar (at NYU)
2022 NSF Graduate Fellowship – Jeffrey Lotthammer (at Washington U. St. Louis)
2022 Undergraduate Research Apprentice Program OSU – Hariharan Kannan
2021 Travel Award, Biophysical Society – Elakkiya Tamilselvan
2021 Travel Award, Biophysical Society – Felix Weng
2021 Undergraduate research scholarship – Travis Harrison-Rawn
2021 Undergraduate Research Apprentice Program OSU – Travis Harrison-Rawn
2020 Student Research Achievement Award, Biophysical Society – Jeffrey Lotthammer
2020 Presidential Fellowship, OSU – Brandon Neel
2019 Travel Award, Biophysical Society – Collin Nisler
2019 Travel Award, Biophysical Society – Joseph Sudar
2019 Travel Award, Biophysical Society – Jeffrey Lotthammer
2019 Travel Award, American Society for Cell Biology – Debadrita Modak
2019 OSC symposium poster prize – Sanket Walujkar
2019 Fellowship – Molecular Biophysics Training Program – Diana Lopez
2019 Fellowship – Molecular Biophysics Training Program – Marissa Boyer
2019 IGP OSU poster prize – Elakkiya Tamilselvan
2019 MBTP OSU poster prize – Collin Nisler
2019 CMBP/CRB OSU symposium poster prize – Brandon Neel
2019 Mayers summer research scholarship – Joseph Sudar
2019 Mayers summer research scholarship – Jeffrey Lotthammer
2019 Kraska endowed chemistry scholarship fund – Joseph Sudar
2019 Gary Booth scholarship fund – Jeffrey Lotthammer
2019 Undergraduate research scholarship – Jeffrey Lotthammer
2019 Undergraduate research scholarship – Serina Smith
2019 Denman Undergraduate Research Forum, 3rd place – Leah Pastor
2019 Focus symposium poster prize – Debadrita Modak
2019 Travel Award, Biophysical Society – Sanket Walujkar
2018 Fellowship – Molecular Biophysics Training Program – Marissa Boyer
2018 Molecular Biophysics Symposium Best Oral Presentation Award – Collin Nisler

2018 Mayers summer research scholarship – Leah Pastor
2018 Mayers summer research scholarship – Joseph Sudar
2018 Mayers summer research scholarship – Jeffrey Lotthammer
2018 Hayes Forum, Biological Sciences Division, 1st place – Debadrita Modak
2018 Student Research Achievement Award Poster Competition, Biophysical Society – Debadrita Modak
2018 Education Committee Travel Award, Biophysical Society – Debadrita Modak
2017 Devon Walter Meek Lecture Poster Presentation, 3rd place – Deepanshu Choudhary
2017 Fellowship – Molecular Biophysics Training Program – Collin Nisler
2017 Fellowship – Cellular, Biochemical, and Molecular Sciences Training Program – Brandon Neel
2017 Pelotonia postdoctoral fellowship – Pedro De-La-Torre
2017 Pelotonia graduate fellowship – Debadrita Modak
2017 College of Engineering Undergraduate Summer Research Scholarship – Joseph Sudar
2016 Association for Research in Otolaryngology Travel Grant Award – Yoshie Narui
2016 Mayers summer research scholarship – Lahiru Wimalasena
2016 First place and "outstanding oral presentation" OSU IGP Symposium – Avinash Jaiganesh
2016 College of Engineering Undergraduate Summer Research Scholarship – Pranay Arora
2016 Denman Undergraduate Research Forum, 1st place – Lahiru Wimalasena
2016 NSF Graduate Fellowship honorable mention – Collin Nisler
2016 NSF Graduate Fellowship – Florencia Velez-Cortes
2016 Seilhamer Fellowship – Sharon Cooper
2015 Mayers summer research scholarship – Lahiru Wimalasena
2015 Mayers summer research scholarship – Domenic Termine
2015 Denman Undergraduate Research Forum, honorary mention – Aniket Patel
2015 Denman Undergraduate Research Forum, 3rd place – Zachary Johnson
2015 Denman Undergraduate Research Forum, 1st place – Lahiru Wimalasena
2015 Biophysical Society CPOW travel award – Yoshie Narui
2014 Pelotonia postdoctoral fellowship – Raúl Araya-Secchi

SERVICE

Admissions Committee – Chemistry & Biochemistry PhD program 2013-2017. Reviewed files from biological-division applicants and provided evaluations.

Coordinator of research focus group (RFG) seminar series – Chemical and Structural Biology and Biophysics 2014-2020. Organized schedule for RFG seminars and Research in Progress talks (CHEM8896).

Data Analytics Search Committee 2014-2015. Reviewed application material for a junior faculty position in the Department of Chemistry and Biochemistry. Helped host and evaluate candidates visiting during January 2015.

Temporary Advisor – Mentoring and guidance for new Chemistry & Biochemistry Ph.D students (biological and physical chemistry divisions), 2015-2016, 2023.

First Year Oral Exam Committee – Physical Chemistry Division 2015, 2017, 2021, 2022; Biochemistry Division 2017, 2019. Evaluated first year student's progress and whether they are ready to proceed with further requirements of PhD program.

Doctoral, Master and Candidacy Committees – Served in >100 committees in various graduate programs at OSU.

Recruiting Committee – Ohio State Biochemistry Program 2017-2019, 2023.

Recruiting Committee – Department of Chemistry and Biochemistry Graduate Program 2018.

Graduate Studies Committee – Biophysics Graduate Program 2018-2023.

Graduate Studies Committee – Chemistry Graduate Program 2021-2023.

Chair of Diversity Committee – Chemistry and Biochemistry Department 2021-2022.

Biochemistry Search Committee 2019-2020. Reviewed application material for a junior faculty position in the Department of Chemistry and Biochemistry. Helped host and evaluate candidates visiting during January - February 2020.

Biochemistry Search Committee 2021-2022. Reviewed application material for two junior faculty positions in the Department of Chemistry and Biochemistry. Helped host and evaluate candidates visiting during January - February 2022.

Computer Support Committee - Chemistry & Biochemistry Department 2016 – 2021.

Hiring Committee – Chemistry & Biochemistry Department 2021.

Member of the NIH Communication Disorders Review Committee (CDRC), July 1, 2020, to June 30, 2024.

REVIEWER

Biophysical Journal; The European Physical Journal E -Soft Matter; Journal of Molecular Graphics and Modelling; Journal of General Physiology; Molecular Cell; Nature Structural and Molecular Biology; The Journal of Physical Chemistry; Structure; Journal of Molecular Biology; Nature Communications; Nature Neuroscience; Science; Biomechanics and Modeling in Mechanobiology; PLOS Computational Biology; PLOS Genetics; BBA Molecular Cell Research; Nature; eLife; PNAS; NSF; Wellcome Trust; Israel Science Foundation; Institut Pasteur; National Institutes of Health.

SOFTWARE

VMD Autoionize GUI; VMD Mutator plugin; VMD DataImport plugin.
Assistance in NAMD implementation and validation of CMAP.

OUTREACH AND IN THE NEWS (selected)

2013 Sounds Science - https://www.soci.org/Chemistry-and-Industry/CnI-Data/2013/3/Sound-science

2015 Biochemist named 2015 Sloan fellow - https://artsandsciences.osu.edu/news/biochemist-named-2015-sloan-fellow

2015 ¿Qué Pasa OSU? - https://issuu.com/quepasa_osu/docs/qpsring2015v22n2-web/32

2015 Listening in on the cadherin family's secrets - https://rupress.org/jcb/article/211/5/938/38386/Marcos-Sotomayor-Listening-in-on-the-cadherin

2018 The hearing molecule - https://hms.harvard.edu/news/hearing-molecule

2019 Listening tips - https://sbgrid.org/software/tale/listening_tips

2019 Molecular Machinery of Hearing - https://www.youtube.com/watch?v=RRj7CXr6O2A&feature=youtu.be

2020 Two molecular handshakes for hearing - https://www.aps.anl.gov/APS-Science-Highlight/2020-10-12/two-molecular-handshakes-for-hearing

2021 High-Tech Images Help Scientists “See” Hearing Process - https://www.noisyplanet.nidcd.nih.gov/have-you-heard/high-tech-images-help-scientists-see-hearing-process

2021 Supercomputing the secrets of the inner ear - https://www.hpcwire.com/off-the-wire/supercomputing-the-secrets-of-the-inner-ear/

2023 Toward a therapy for a rare genetic disease - https://hms.harvard.edu/news/toward-therapy-rare-genetic-disease